SIEMENS

PATENT
Attorney Docket No. 2002P13491WOUS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Inventor:	J. Andrieu et al.	Group Art Unit:	2416
Serial No.:	10/525,155	Examiner:	H. Baron
Filed:	September 22, 2005	Confirmation No.:	5669
Title	Distribution Fan-Out For An Efficient, Failsafe Traffic Distribution In A Packet Network		

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APPELLANT'S BRIEF UNDER 37 CFR 41.37

This brief is in furtherance of the Notice of Appeal filed on October 14, 2009.

1. REAL PARTY IN INTEREST - 37 CFR 41.37(c)(1)(i)

The real party in interest in this Appeal is the assignee of the present application, Siemens Aktiengesellschaft.

2. RELATED APPEALS AND INTERFERENCES - 37 CFR 41.37(c)(1)(ii)

To the best of our knowledge, there is no other appeal, interference or judicial proceeding that is related to or that will directly affect, or that will be directly affected by, or that will have a bearing on the Board's decision in this Appeal.

3. STATUS OF CLAIMS - 37 CFR 41.37(c)(1)(iii)

Claims pending: 10-12, 14-23, 25 and 27-29.

Claims cancelled: 1-9, 13, 24 and 26.

Claims withdrawn but not cancelled: none

Claims allowed: none

Claims rejected: 10-12, 14-23, 25 and 27-29. (In view of the remarks in section 11 of the Advisory Action dated September 03, 2009, Appellants presume that the allowable status of all pending claims indicated in section 7 of the same Advisory Action is incorrect)

Claims on appeal: 10-12, 14-23, 25 and 27-29.

4. STATUS OF AMENDMENTS - 37 CFR 41.37(c)(1)(iv)

After the final rejection, an amendment under 37 C.F.R. §1.116 requesting reconsideration (no amendment of claims, just arguments) was presented by Appellants and this amendment was considered, as per the Advisory Action dated 08/25/2009.

5. SUMMARY OF THE CLAIMED SUBJECT MATTER- 37 CFR 41.37(c)(1)(v)

Independent claim 10 is directed to a method for defining a distribution fan-out for the distribution of traffic via different paths in a packet-based communication network formed by a plurality of nodes and a plurality of connection sections for packet traffic having the same egress node. Claim 10 recites the following structural and/or operational relationships:

Defining for the communication network a node arrangement comprising a plurality of distinct node classes that encompasses all of the plurality of nodes of the communication

network, wherein each respective one of the distinct node classes is distinguished from one another based on a number of hops required by each node in a given class to reach the egress node. See FIG. 1, classification of nodes. See page 4, lines 1-12 of paragraph [0013] of the disclosure of the present invention (Substitute Specification, hereinafter referred to as "Disclosure"); see also page 9, lines 1-7 of paragraph [0022] and page 10, lines 1-6 of paragraph [0024] of the disclosure.

Wherein the defining of the node arrangement comprises dividing all of the plurality of nodes into the plurality of distinct classes subject to satisfying a first condition and a second condition, wherein the first condition establishes for each node a path to the egress node which is measured in a minimum number of hops, and the second condition establishes no loop formation within each distinct class, whereby nodes with the same minimum number of hops belong to the same class. See FIG. 2, links between classes and FIG. 3, links within classes. See pages 4-5, lines 11-18 of paragraph [0013]; see also pages 9-10, lines 7-28 of paragraph [0022], page 10, lines 1-4 of paragraph [0023]; see page 12, each line of paragraph [0031]and pages 10-11, each line of paragraphs [0025] through [0030].

Wherein from each node of a class, a link is routed to a node of a class having one fewer hop. See FIG. 2, links between classes. See also page 8, lines 5-6 of paragraph [0021] of the disclosure.

Wherein for a node of a class which is connected by a connection section to a node having the same class, a link between the node and the node of the same class is defined. See FIG. 3, links within classes. See also page 8, lines 7-8 of paragraph [0021] of the disclosure.

Independent claim 12 is directed to a method for defining a distribution fan-out for the distribution of traffic via different paths in a packet-based communication network formed by a plurality of nodes and a plurality of connection sections for packet traffic having the same egress node. Claim 12 recites the following structural and/or operational relationships:

Defining for the communication network a node arrangement comprising a plurality of distinct node classes that encompasses all of the plurality of nodes of the communication network, wherein each respective one of the distinct node classes is distinguished from one another based on a number of hops required by each node in a given class to reach the egress node. See FIG. 1, classification of nodes. See page 4, lines 1-12 of paragraph [0013] of the

disclosure; see also page 9, lines 1-7 of paragraph [0022] and page 10, lines 1-6 of paragraph [0024] of the disclosure.

Wherein the defining of the node arrangement comprises dividing all of the plurality of nodes into the plurality of distinct classes subject to satisfying a first condition and a second condition, wherein the first condition establishes for each node a path to the egress node which is measured in a minimum number of hops, and the second condition establishes no loop formation within each distinct class, the node classes are determined according to the minimum number of hops between the nodes and the egress node, whereby nodes with the same minimum number of hops belong to the same class. See FIG. 2, links between classes and FIG. 3, links within classes. See pages 4-5, lines 11-18 of paragraph [0013]; see also pages 9-10, lines 7-28 of paragraph [0022], page 10, lines 1-4 of paragraph [0023]; see page 12, each line of paragraph [0031]; and pages 10-11, each line of paragraphs [0025] through [0030].

Routing from each node of a class at least one link to a node of a class having one fewer hop, werein from each node of a class, a link is routed to a node of a class having one fewer hop. See FIG. 2, links between classes. See also page 8, lines 5-6 of paragraph [0021] of the disclosure.

Wherein for at least one node of a class which is connected by a connection section to a node of the same class, at least one link between the node and a node of the same class is defined. See FIG. 3, links within classes. See also page 8, lines 7-8 of paragraph [0021] of the disclosure.

Wherein, in the case of a node which is assigned to a class and which has one outgoing link, in the event of failure of said outgoing link:

for each link to the respective node that originates from a node having the same class as the respective node, the respective link is inverted. See FIG. 6. See also page 4, lines 1-6 of paragraph [0075] of the disclosure;

when no link to the respective node originates from a node having the same class, all links to the respective node are inverted. See FIGs 7 and 8. See page 4, each line of paragraphs [0075] and [0076].

6. GROUNDS OF REJECTION TO BE REVIEWED UPON APPEAL - 37 CFR 41.37(c)(1)(vi)

A) Whether claims 10-11 and 14-15 stand rejected under 35 U.S.C § 103(a) as being unpatentable over US patent No. 5,491,690 (hereinafter Alfonsi) in view of US patent No. 5,881,243 (hereinafter (Zaumen).

B) Whether claims 12, 16-23, 25 and 27-29 stand rejected under 35 U.S.C § 103(a) as being unpatentable over Alfonsi in view of Zaumen, and further in view of of US patent No. 6,667,957 (hereinafter Corson).

7. ARGUMENT 37 CFR 41.37(c)(1)(vii)

A) Regarding the rejection of claims 10-11 and 14-15 under 35 U.S.C. §103(a) as being unpatentable over Alfonsi in view of Zaumen, Appellants respectfully request the Board to reverse these rejections since, as elaborated in greater detail below, Appellants respectfully submit that the Examiner has not appropriately established a *prima facie* case of obviousness regarding the claimed invention.

M.P.E.P. §2143.03 provides that to establish *prima facie* obviousness of a claimed invention, all the claims limitations must be taught or suggested by the prior art. All words in a claim must be considered for judging the patentability of the claim against the prior art. If an independent claim is nonobvious under 35 U.S.C. 103, then any claim depending there from is nonobvious.

M.P.E.P. §2111 expressly requires that the Examiner's claim interpretation must be 1) reasonable, and 2) must also be consistent with the interpretation that those skilled in the art would reach. M.P.E.P. §2111 does not give unlimited freedom to the Examiners in connection with claim interpretation during prosecution.

Claim 10 in part recites "defining for the communication network a node arrangement comprising a plurality of distinct node classes that encompasses all of the plurality of nodes of the communication network". Claim 10 further recites "wherein the defining of the node arrangement comprises dividing all of the plurality of nodes into the plurality of distinct classes

subject to satisfying a first condition and a second condition. . ." Lastly, claim 10 recites "wherein from each node of a class, a link is routed to a node of a class having one fewer hop ...". (Underlining added for emphasis by Appellants)

The Abstract (lines 21-23) of Alfonsi describes:

For a given connection, only a limited number of nodes are eligible and are taken in account by the algorithm in the optimal route search.

In the Summary of the Invention, at col. 8, lines 15-17 Alfonsi describes:

For a given connection, only a limited number of nodes are eligible and are taken in account by the algorithm in the optimal route search. The object of the invention is to split the network in backbone and local nodes to speed up the path selection.

In the description of the Preferred embodiment, at col. 11, lines 12-15 Alfonsi describes:

The purpose of the present invention is, for a given connection, to simplify the network topology by reducing the number of eligible nodes for the path calculation.

At col. 15, lines 53-55 Alfonsi further describes

Only the backbone links, and the local links attaching the source node and the destination node to the backbone (701) are taken into account in the search process.

At Table TA in col. 15, line 38 Alfonsi lists Eligible and Non-eligible links.

Alfonsi uses a routing algorithm subject to a hop constraint. However, Alfonsi makes plainly clear (see above-listed excerpts) that not every node (regardless of hop size, 1 Hop, 2 Hop, etc.) is eligible in his routing algorithm for a path calculation. That is, one skilled in the art will appreciate, based on the description of Alfonsi, that some nodes of Alfonsi from the outset are just not taken into account. Alfonsi expressly purports that this feature is the purpose of his invention. In view of the foregoing considerations, Appellants respectfully assert that, if anything, Alfonsi teaches away from the claimed invention, being that one skilled in the art will appreciate that the purported objective of Alfonsi is antithetical to the above-listed structural

and/or operational relationships of the claimed invention. See MPEP § 2141.02 (prior art must be considered in its entirety, including disclosures that teach away from the claims). Appellants respectfully submit that the foregoing violation of M.P.E.P. § 2141.02 is indicia that the Examiner has failed to articulate a reasoning with the "rational underpinning" required under MPEP 2143.01(IV).

In connection with Zaumen, Appellants respectfully submit that whether or not Zaumen teaches that which it is cited as allegedly teaching, such a reference fails to cure the fundamental deficiencies of Alfonsi noted above in connection with the claimed invention, and consequently the combination of Alfonsi and Zaumen fails to establish a *prima facie* case of obviousness regarding independent claim 10 and dependent claim 11 and 14-15. In light of the foregoing considerations, Appellants respectfully request the Board to reverse the §103 rejections of these claims.

B) Regarding the rejection of claims 12, 16-23, 25 and 27-29 under 35 U.S.C. §103(a) as being unpatentable over Alfonsi in view of Zaumen and further in view of Corson, Appellants respectfully submit that claim 12 recites structural and/or operational relationships similar to the foregoing structural and/or operational relationships discussed above in connection with claim 10. Appellants further submit that, whether or not Zaumen and Corson teach that which they are cited as allegedly teaching, such references fail to remedy the fundamental deficiencies of Alfonsi noted above in connection with the invention. Consequently, the combination of Alfonsi, Zaumen and Corson equally fails to constitute a *prima facie* combination for appropriately sustaining §103 rejections of independent claim 12 and dependent claims 16-23, 25 and 27-29. Therefore, Appellants respectfully submit that these claims are similarly patentable over such a combination and respectfully request the Board to reverse these §103 rejections.

8. CLAIMS APPENDIX - 37 CFR 41.37(c) (1) (viii).

A copy of the claims involved in this appeal is attached as a claims appendix under 37 CFR 41.37(c) (1) (viii).

9. EVIDENCE APPENDIX - 37 CFR 41.37(c) (1) (ix)

None is required under 37 CFR 41.37(c) (1) (ix).

10. RELATED PROCEEDINGS APPENDIX - 37 CFR 41.37(c) (1) (x)

None is required under 37 CFR 41.37(c) (1) (x).

Respectfully submitted,

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APPENDIX OF CLAIMS ON APPEAL

10. A method for defining a distribution fan-out for the distribution of traffic via different paths in a packet-based communication network formed by a plurality of nodes and a plurality of connection sections for packet traffic having the same egress node, the method comprising:

defining for the communication network a node arrangement comprising a plurality of distinct node classes that encompasses all of the plurality of nodes of the communication network, wherein each respective one of the distinct node classes is distinguished from one another based on a number of hops required by each node in a given class to reach the egress node;

wherein the defining of the node arrangement comprises dividing all of the plurality of nodes into the plurality of distinct classes subject to satisfying a first condition and a second condition, wherein the first condition establishes for each node a path to the egress node which is measured in a minimum number of hops, and the second condition establishes no loop formation within each distinct class, whereby nodes with the same minimum number of hops belong to the same class,

wherein from each node of a class, a link is routed to a node of a class having one fewer hop, and

wherein for a node of a class which is connected by a connection section to a node having the same class, a link between the node and the node of the same class is defined.

11. The method according to Claim 10, wherein from each node of a class a link is routed along each connection section to a node of the class having one fewer hop.

12. A method for defining a distribution fan-out for the distribution of traffic via different paths in a packet-based communication network formed by a plurality of nodes and a plurality of connection sections for packet traffic having the same egress node, the method comprising:

defining for the communication network a node arrangement comprising a plurality of distinct node classes that encompasses all of the plurality of nodes of the communication network, wherein each respective one of the distinct node classes is distinguished from one another based on a number of hops required by each node in a given class to reach the egress node;

wherein the defining of the node arrangement comprises dividing all of the plurality of nodes into the plurality of distinct classes subject to satisfying a first condition and a second condition, wherein the first condition establishes for each node a path to the egress node which is measured in a minimum number of hops, and the second condition establishes no loop formation within each distinct class, the node classes are determined according to the minimum number of hops between the nodes and the egress node, whereby nodes with the same minimum number of hops belong to the same class; and

routing from each node of a class at least one link to a node of a class having one fewer hop

wherein from each node of a class, a link is routed to a node of a class having one fewer hop,

wherein for at least one node of a class which is connected by a connection section to a node of the same class, at least one link between the node and a node of the same class is defined,

wherein, in the case of a node which is assigned to a class and which has one outgoing link, in the event of failure of said outgoing link:

for each link to the respective node that originates from a node having the same class as the respective node, the respective link is inverted, and

when no link to the respective node originates from a node having the same class, all links to the respective node are inverted.

14. The method according to Claim 12, further comprising:

defining links on connection sections between nodes of a class, wherein said links being defined according to a maximization of the number of outgoing logical links for the node or nodes of the class having the least number of outgoing links, and according to loop freedom in respect of the links between nodes of the class.

15. The method according to Claim 13, further comprising:

defining links on connection sections between nodes of a class, wherein said links being defined according to a maximization of the number of outgoing logical links for the node or nodes of the class having the least number of outgoing links, and according to loop freedom in respect of the links between nodes of the class.

16. The method according to Claim 14, wherein

for nodes of the class, the nodes are sequenced according to the number of outgoing links and, when nodes have the same number of outgoing links, according to the capacity of the incoming links, and performing for at least some of the nodes, the following steps for each node depending on their sequence:

identifying the shortest path from the node to the set of nodes of the class which is fewer by one, paths via outgoing links leading directly to nodes of the class N-1 being disregarded, and

incorporating the link via the first connection section of the identified path into the distribution fan-out as a link, when an identified path does not lead to a loop within the nodes of the class.

17. The method according to Claim 15, wherein

for nodes of the class, the nodes are sequenced according to the number of outgoing links and, when nodes have the same number of outgoing links, according to the capacity of the incoming links, and performing for at least some of the nodes, the following steps for each node depending on their sequence:

identifying the shortest path from the node to the set of nodes of the class which is fewer by one, paths via outgoing links leading directly to nodes of the class N-1 being disregarded, and

incorporating the link via the first connection section of the identified path into the distribution fan-out as a link, when an identified path does not lead to a loop within the nodes of the class.

18. The method according to Claim 10, wherein, in the case of a node which is assigned to a class and which has at least two outgoing links, in the event of failure of one of the outgoing links, the traffic to be routed via this link is distributed onto the other outgoing link or links.

19. The method according to Claim 11, wherein, in the case of a node which is assigned to a class and which has at least two outgoing links, in the event of failure of one of the outgoing links, the traffic to be routed via this link is distributed onto the other outgoing link or links.

20. The method according to Claim 12, wherein, in the case of a node which is assigned to a class and which has at least two outgoing links, in the event of failure of one of the outgoing links, the traffic to be routed via this link is distributed onto the other outgoing link or links.

21. The method according to Claim 13, wherein, in the case of a node which is assigned to a class and which has at least two outgoing links, in the event of failure of one of the outgoing links, the traffic to be routed via this link is distributed onto the other outgoing link or links.

22. The method according to Claim 14, wherein, in the case of a node which is assigned to a class and which has at least two outgoing links, in the event of failure of one of the outgoing links, the traffic to be routed via this link is distributed onto the other outgoing link or links.

23. The method according to Claim 16, wherein, in the case of a node which is assigned to a class and which has at least two outgoing links, in the event of failure of one of the outgoing links, the traffic to be routed via this link is distributed onto the other outgoing link or links.

25. The method according to Claim 11, wherein, in the case of a node which is assigned to a class and which has one outgoing link, in the event of failure of said outgoing link:

for each link to the respective node that originates from a node having the same class as the respective node, the respective link is inverted, and

when no link to the respective node originates from a node having the same class, all links to the respective node are inverted.

27. The method according to Claim 10, wherein in the event of failure of an outgoing link of a node assigned to a class, the class of the node is redefined when the duration of the failure exceeds a limit value.

28. The method according to Claim 11, wherein in the event of failure of an outgoing link of a node assigned to a class, the class of the node is redefined when the duration of the failure exceeds a limit value.

29. The method according to Claim 12, wherein in the event of failure of an outgoing link of a node assigned to a class, the class of the node is redefined when the duration of the failure exceeds a limit value.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.